SEQUENCE LISTING

<110> Sera, Takashi

<120> Zinc Finger Domain Recognition Code and Uses Thereof

<130> 109846-130

<150> US 60/220,060

<151> 2000-07-21

<160> 69

<170> PatentIn version 3.0

<210> 1
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<220>
<221> VARIANT
<222> (1)..(28)
<223> Amino acids 1-3, 8-19 and 25-28 are Xaa wherein Xaa = any amino acid.

<220>
<221> VARIANT
<222> (5)..(6)
<223> Amino acid 5 is Xaa wherein Xaa = any amino acid, amino acids 5 and 6 together represent from 2 to 4 amino acids in length.

<220>
<221> VARIANT
<222> (21)..(23)

<223> Amino acid 21 is Xaa wherein Xaa = any amino acid, amino acids 21-23 together represent from 3 to 5 amino acids in length.

<400>> 1

Xaa Xaa Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa His Xaa Xaa Xaa His Xaa Xaa Xaa Xaa
20 25

<210> 2
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<220>
<221> VARIANT
<222> (1)..(28)

<223> Amino acids 1-3, 8-12, 14, 17-18 and 25-28 are Xaa wherein Xaa = any amino acid.

<220>
<221> VARIANT
<222> (5)..(6)
<223> Amino acid 5 is Xaa wherein Xaa = any amino acid, amino acids 5 and 6 together represent from 2 to 4 amino acids in length.

<220>
<221> VARIANT
<222> (21)..(23)
<223> Amino acid 21 is Xaa wherein Xaa = any amino acid, amino acids 21-23 together represent from 3 to 5 amino acids in length.

<220>
<221> VARIANT
<222> (13)..(13)
<223> Amino acid 13 is Xaa wherein Xaa = Z-1 wherein Z-1 = Arg or Lys, Gln or Asn, Thr, Met, Leu or Ile, or Glu or Asp.

<220>
<221> VARIANT
<222> (15)..(15)
<223> Amino acid 15 is Xaa wherein Xaa = Z2 wherein Z2 = Ser or Arg, Asn Gln, Thr, Val or Ala, or Asp or Glu.

<220>
<221> VARIANT
<222> (16)..(16)
<223> Amino acid 16 is Xaa wherein Xaa = Z3 wherein Z3 = His or Lys, Asn or Gln, Ser, Ala, or Val, or Asp or Glu.

<220>
<221> VARIANT
<222> (19)..(19)
<223> Amino acid 19 is Xaa wherein Xaa = Z6 wherein Z6 = Arg or Lys, Gln or Asn, Thr, Tyr, Leu, Ile or Met, or Glu or Asp.

<400>> 2

Xaa Xaa Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa His Xaa Xaa Xaa His Xaa Xaa Xaa Xaa
20 25

<210> 3
<211> 196
<212> PRT
<213> Artificial Sequence

<220>

<223> Zinc finger protein.

<400>> 3

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Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly
1               5                  10                  15

Cys Gly Lys Val Tyr Gly Gln Ser Ser Asp Leu Gln Arg His Leu Arg
            20                  25                  30

Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly
        35                  40                  45

Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His
    50                  55                  60

Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met
65                  70                  75                  80

Arg Ser Asp Glu Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys
                85                  90                  95

Asp Gly Gly Gly Ser Gly Lys Lys Lys Gln His Ile Cys His Ile Gln
            100                 105                 110

Gly Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu
        115                 120                 125

Arg Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys
    130                 135                 140

Gly Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr
145                 150                 155                 160

His Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe
                165                 170                 175

Met Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys
            180                 185                 190
```

Lys Gly Gly Ser
195

<210> 4
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 4

Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly
1 5 10 15

Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu Arg
20 25 30

Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly
35 40 45

Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His
50 55 60

Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met
65 70 75 80

Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys
85 90 95

Gly Gly Ser

<210> 5

<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 5

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Gln Gln His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 6
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 6

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Glu Ser Ser Asp Leu Gln Arg His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 7
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 7

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu

20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Gln Glu His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 8
<211> 99
<212> PRT

<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 8

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu Gln Arg His Gln

50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 9
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 9

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser Asn Leu Gln Glu His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 10
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<400> 10

Met Glu Lys Leu Arg Asn Gly Ser Gly Asp Pro Gly Lys Lys Lys Gln
1 5 10 15

His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu
20 25 30

Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
35 40 45

Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asp Leu Gln Arg His Gln
50 55 60

Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65 70 75 80

Ser Phe Ser Arg Ser Asp His Leu Ser Arg His Gln Arg Thr His Gln
85 90 95

Asn Lys Lys

<210> 11
<211> 229
<212> PRT

<213> Human

<400> 11

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Met Arg Leu Ala Lys Pro Lys Ala Gly Ile Ser Arg Ser Ser Ser Gln
1               5                   10                  15

Gly Lys Ala Tyr Glu Asn Lys Arg Lys Thr Gly Arg Gln Arg Glu Lys
            20                  25                  30

Trp Gly Met Thr Ile Arg Phe Asp Ser Ser Phe Ser Arg Leu Arg Arg
        35                  40                  45

Ser Leu Asp Asp Lys Pro Tyr Lys Cys Thr Glu Cys Glu Lys Ser Phe
    50                  55                  60

Ser Gln Ser Ser Thr Leu Phe Gln His Gln Lys Ile His Thr Gly Lys
65                  70                  75                  80

Lys Ser His Lys Cys Ala Asp Cys Gly Lys Ser Phe Phe Gln Ser Ser

                85                  90                  95

Asn Leu Ile Gln His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys
            100                 105                 110

Cys Asp Glu Cys Gly Glu Ser Phe Lys Gln Ser Ser Asn Leu Ile Gln
        115                 120                 125

His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Asp Glu Cys
    130                 135                 140

Gly Arg Cys Phe Ser Gln Ser Ser His Leu Ile Gln His Gln Arg Thr
145                 150                 155                 160

His Thr Gly Glu Lys Pro Tyr Gln Cys Ser Glu Cys Gly Lys Cys Phe
                165                 170                 175

Ser Gln Ser Ser His Leu Arg Gln His Met Lys Val His Lys Glu Glu
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180 185 190

Lys Pro Arg Lys Thr Arg Gly Lys Asn Ile Arg Val Lys Thr His Leu
195 200 205

Pro Ser Trp Lys Ala Gly Thr Glu Gly Ser Leu Trp Leu Val Ser Val
210 215 220

Lys Tyr Arg Ala Phe
225

<210> 12
<211> 393
<212> PRT
<213> Mouse

<400> 12

Met Ser Glu Glu Pro Leu Glu Asn Ala Glu Lys Asn Pro Gly Ser Glu
1 5 10 15

Glu Ala Phe Glu Ser Gly Asp Gln Ala Glu Arg Pro Trp Gly Asp Leu
20 25 30

Thr Ala Glu Glu Trp Val Ser Tyr Pro Leu Gln Gln Val Thr Asp Leu
35 40 45

Leu Val His Lys Glu Ala His Ala Gly Ile Arg Tyr His Ile Cys Ser
50 55 60

Gln Cys Gly Lys Ala Phe Ser Gln Ile Ser Asp Leu Asn Arg His Gln
65 70 75 80

Lys Thr His Thr Gly Asp Arg Pro Tyr Lys Cys Tyr Glu Cys Gly Lys
85 90 95

Gly Phe Ser Arg Ser Ser His Leu Ile Gln His Gln Arg Thr His Thr
100 105 110

Gly Glu Arg Pro Tyr Asp Cys Asn Glu Cys Gly Lys Ser Phe Gly Arg
115 120 125

Ser Ser His Leu Ile Gln His Gln Thr Ile His Thr Gly Glu Lys Pro
130 135 140

His Lys Cys Thr Glu Cys Ala Lys Ala Ser Ala Ala Ser Pro His Leu
145 150 155 160

Ile Gln His Gln Arg Thr His Ser Gly Glu Lys Pro Tyr Glu Cys Glu
165 170 175

Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Ala Gln His Gln
180 185 190

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Glu Cys Gly Arg
195 200 205

Gly Phe Ser Glu Arg Ser Asp Leu Ile Lys His Tyr Arg Val His Thr
210 215 220

Gly Glu Arg Pro Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Ser Gln
225 230 235 240

Asn Ser Asp Leu Val Arg His Arg Arg Ala His Thr Gly Glu Lys Pro
245 250 255

Tyr His Cys Asn Glu Cys Gly Glu Asn Phe Ser Arg Ile Ser His Leu
260 265 270

Val Gln His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Thr
275 280 285

Ala Cys Gly Lys Ser Phe Ser Arg Ser Ser His Leu Ile Thr His Gln
290 295 300

Lys Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Asn Glu Cys Trp Arg
305 310 315 320

Ser Phe Gly Glu Arg Ser Asp Leu Ile Lys His Gln Arg Thr His Thr
325 330 335

Gly Glu Lys Pro Tyr Glu Cys Val Gln Cys Gly Lys Gly Phe Thr Gln
340 345 350

Ser Ser Asn Leu Ile Thr His Gln Arg Val His Thr Gly Glu Lys Pro
355 360 365

Tyr Glu Cys Thr Glu Cys Asp Lys Ser Phe Ser Arg Ser Ser Ala Leu
370 375 380

Ile Lys His Lys Arg Val His Thr Asp
385 390

<210> 13
<211> 28

<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<220>
<221> VARIANT
<222> (13)..(13)
<223> Amino acid 13 is Xaa wherein Xaa = Z-1 wherein Z-1 = Arg or Lys, Gln or Asn, Thr, Met, Leu or Ile, or Glu or Asp.

<220>
<221> VARIANT
<222> (15)..(15)
<223> Amino acid 15 is Xaa wherein Xaa = Z2 wherein Z2 = Ser or Arg, Asn or Gln, Thr, Val, or Ala, or Asp or Glu.

<220>

<221> VARIANT
<222> (16)..(16)
<223> Amino acid 16 is Xaa wherein Xaa = Z3 wherein Z3 = His or Lys, Asn or Gln, Ser, Ala, or Val, or Asp or Glu.

<220>
<221> VARIANT
<222> (19)..(19)
<223> Amino acid 19 is Xaa wherein Xaa = Z6 wherein Z6 = Arg or Lys, Gln or Asn, Thr, Tyr, Leu, Ile or Met, or Glu or Asp.

<400> 13

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
1 5 10 15

Leu Gln Xaa His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 14
<211> 10
<212> DNA
<213> Tomato golden mosaic virus

<400> 14
agtaaggtag 10

<210> 15
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<400> 15

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Asp Ser
1 5 10 15

Leu Gln Arg His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 16
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<400> 16

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn
1 5 10 15

Leu Gln Gln His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 17
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<400> 17

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Thr His
1 5 10 15

Leu Gln Gln His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 18
<211> 11
<212> PRT
<213> Human immunodeficiency virus

<400> 18

Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 19
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Acid dimerization peptide.

<400> 19

Ala Gln Leu Glu Lys Glu Leu Gln Ala Leu Glu Lys Glu Asn Ala Gln
1 5 10 15

Leu Glu Trp Glu Leu Gln Ala Leu Glu Lys Glu Leu Ala Gln
20 25 30

<210> 20
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Basic dimerization peptide.

<400> 20

Ala Gln Leu Lys Lys Lys Leu Gln Ala Leu Lys Lys Lys Asn Ala Gln

1 5 10 15

Leu Lys Trp Lys Leu Gln Ala Leu Lys Lys Lys Leu Ala Gln
20 25 30

<210> 21
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker.

<400> 21

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15

Gly Gly Gly Ser
20

<210> 22
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Flexible linker.

<400> 22
gcagaagcc 9

<210> 23
<211> 5
<212> PRT

<213> Artificial Sequence

<220>
<223> Flexible linker.

<400> 23

Gly Gly Gly Gly Ser
1 5

<210> 24
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Al1 target polynucleotide.

<400> 24
tatatataag taaggtagta tatata 26

<210> 25
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Target polynucleotide for zinc finger protein Zif268.

<400> 25
tatatatagc gtgggcgtta tatata 26

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 26
tatatataag taaggtagta tatata 26

<210> 27
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 27
tatatataag taaggtaata tatata 26

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 28
tatatataag taaggtatta tatata 26

<210> 29
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 29
tatatataag taaggtacta tatata 26

<210> 30
<211> 84
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger protein.

<220>
<221> VARIANT
<222> (15)..(15)
<223> Amino acid 15 is "Xaa" wherein "Xaa" = Asp or Gly.

<400> 30

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Asp Ser Xaa Ala
1 5 10 15

Leu Gln Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
20 25 30

Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn Leu Gln Lys His
35 40 45

Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
50 55 60

Lys Ser Phe Ser Arg Ser Asp His Leu Gln Arg His Gln Arg Thr His
65 70 75 80

Thr Gly Glu Lys

<210> 31
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Degenerate DNA probe.

<220>
<221> misc_feature
<222> (7)..(10)
<223> Nucleotides 7-10 are "n" wherein "n" = g, a, t, or c.

<400> 31
ggggaannnn 10

<210> 32
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence.

<220>
<221> misc_feature
<222> (14)..(16)
<223> Nucleotides 14-16 are "n" wherein "n" = g, a, t, or c.

<400> 32
tatatatagg ggaannngta tatata 26

<210> 33
<211> 26
<212> DNA

<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence.

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 33
tatatatagg ggaannnata tatata 26

<210> 34
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence.

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 34
tatatatagg ggaannntta tatata 26

<210> 35
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Zinc finger domain target sequence.

<220>
<221> misc_feature
<222> (15)..(17)
<223> Nucleotides 15-17 are "n" wherein "n" = g, a, t, or c.

<400> 35
tatatatagg ggaannncta tatata 26

<210> 36
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (45)..(56)

<223> Nucleotides 45-47 and 51-56 are "n" wherein "n" = g, a, t, or c.

<400> 36
ggggagaagc cgtataaatg tccggaatgt ggtaaaagtt ttagcnnnag cnnnnnnttg 60

<210> 37
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (37)..(51)

<223> Nucleotides 37-39 and 46-51 are "n" wherein "n" = g, a, t, or c.

<400> 37
tttgtatggt ttttcaccgg tatgggtacg ctgatgnnnc tgcaannnnn ngctnnngct 60

<210> 38
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (46)..(57)
<223> Nucleotides 46-48 and 52-57 are "n" wherein "n" = g, a, t, or c.

<400> 38
ggtgaaaaac catacaaatg tccagagtgc ggcaaatctt tctctnnntc tnnnnnnctt 60

<210> 39
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (37)..(51)
<223> Nucleotides 37-39 and 46-51 are "n" wherein "n" = g, a, t, or c.

<400> 39
cttgtaaggc ttctcgccag tgtgagtacg ctgatgnnnc tgaagnnnnn nagannnaga 60

<210> 40
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (48)..(58)
<223> Nucleotides 48-50 and 54-58 are "n" wherein "n" = g, a, t, or c.

<400> 40
ggcgagaagc cttacaagtg ccctgaatgc gggaagagct ttagtnnnag tnnnnn 56

<210> 41
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<220>
<221> misc_feature
<222> (28)..(48)
<223> Nucleotides 28-30, 37-42 and 46-48 are "n" wherein "n" = g, a, t, or c

<400> 41
cttctccccc gtgtgcgtgc gttggtgnnn ttgtaannnn nnactnnnac taaag 55

<210> 42
<211> 45

<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer.

<400> 42
gggcccggtc tcgaattcgg ggagaagccg tataaatgtc cggaa 45

<210> 43
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer.

<400> 43
cccgggggtc tcaagctttt acttctcccc cgtgtgcgtg cgttggtg 48

<210> 44
<211> 10
<212> DNA
<213> Beet curly top virus

<400> 44
ttgggtgctc 10

<210> 45
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 45
ggggagaagc cgtataaatg tccggaatgt ggtaaaagtt ttagcaccag cagcgatttg 60

<210> 46
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 46
tttgtatggt ttttcaccgg tatgggtacg ctgatgacgc tgcaaatcgc tgctggtgct 60

<210> 47
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 47
ggtgaaaaac catacaaatg tccagagtgc ggcaaatctt tctctacctc tgatcatctt 60

<210> 48
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 48
cttgtaaggc ttctcgccag tgtgagtacg ctgatgacgc tgaagatgat cagaggtaga 60

<210> 49
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 49
ggcgagaagc cttacaagtg ccctgaatgc gggaagagct ttagtcgtag tgatag 56

<210> 50
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Partial zinc finger domain oligomer.

<400> 50
cttctccccc gtgtgcgtgc gttggtgggt ttgtaagcta tcactacgac taaag 55

<210> 51
<211> 16
<212> DNA
<213> Arabidopsis

<400> 51
atagtttacg tggcat 16

<210> 52
<211> 10
<212> DNA

<213> Arabidopsis

<400> 52
atagtttacg 10

<210> 53
<211> 10
<212> DNA
<213> Arabidopsis

<400> 53
tacgtggcat 10

<210> 54
<211> 45
<212> DNA
<213> Artificial Sequence PCR Primer

<400> 54
ttcagggcgg tctctcggct tctcgccagt gtgagtacgc tgatg 45

<210> 55
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer.

<400> 55
cgaattcggg tctcagccgt ataaatgtcc ggaatgtggt aaaa 44

<210> 56
<211> 45
<212> DNA

<213> Artificial Sequence

<220>
<223> PCR primer.

<400> 56
tgcggccggg tctctcggct tctcccccgt gtgcgtgcgt tggtg 45

<210> 57
<211> 19
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<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 57
ttgggtgctt tgggtgctc 19

<210> 58
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 58
ttgggtgctt 10

<210> 59
<211> 10
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<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 59
ttgggtgctc 10

<210> 60
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<212> DNA
<213> Artificial Sequence

<220>
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<400> 60
tatatatatt gggtgctttg ggtgctctat atata 35

<210> 61
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<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 61
agtaaggtag 10

<210> 62
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
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<400> 62
ttgggtgctc 10

<210> 63
<211> 10

<212> DNA
<213> Artificial Sequence

<220>
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<400> 63
tacgtggcat 10

<210> 64
<211> 10
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<220>
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<400> 64
ggagatgata 10

<210> 65
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
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<400> 65
ttgggtgctt tgggtgctc 19

<210> 66
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
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<400> 66
agtaaggtag gagatgata 19

<210> 67
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFP target sequence.

<400> 67
tacgtggcat tgggtgctc 19

<210> 68
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<220>
<221> VARIANT
<222> (13)..(13)
<223> Amino acid 13 is "Xaa" wherein "Xaa" = Z1 wherein Z1 = Arg, Gln, Thr, Met or Glu

<220>
<221> VARIANT
<222> (15)..(15)

<223> Amino acid 15 is "Xaa" wherein "Xaa" = Z2 wherein Z2 = Ser, Asn, Thr, or Asp

<220>
<221> VARIANT
<222> (16)..(16)
<223> Amino acid 16 is "Xaa" wherein "Xaa" = Z3 wherein Z3 = His, Asn, Ser, or Asp

<220>
<221> VARIANT
<222> (19)..(19)
<223> Amino acid 19 is "Xaa" wherein "Xaa" = Z6 wherein Z6 = Arg, Gln, Thr, Tyr, Leu, or Glu

<400> 68

Gln His Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
1 5 10 15

Leu Gln Xaa His Gln Arg Thr His Thr Gly Glu Lys
20 25

<210> 69
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Zinc finger domain.

<220>
<221> VARIANT
<222> (13)..(13)

<223> Amino acid 13 is "Xaa" wherein "Xaa" = Z1 wherein Z1 = Arg, Gln, Thr, Met, or Glu

<220>
<221> VARIANT
<222> (15)..(15)
<223> Amino acid 15 is "Xaa" wherein "Xaa" = Z2 wherein Z2 = Ser, Asn, Thr, or Asp.

<220>
<221> VARIANT
<222> (16)..(16)
<223> Amino acid 16 is "Xaa" wherein "Xaa" = Z3 wherein Z3 = His, Asn, Ser, or Asp

<220>
<221> VARIANT
<222> (19)..(19)
<223> Amino acid 19 is "Xaa" wherein "Xaa" = Z6 wherein Z6 = Arg, Gln, Thr, Tyr, Leu, or Glu.

<400> 69

Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Xaa Ser Xaa Xaa
1 5 10 15

Leu Ser Xaa His Gln Arg Thr His Thr Gly Glu Lys
20 25